S. Wood,

2 Sheets. Sheet 1.

Planing Shingles.

No. 3,405. Fig. 1 Patented Jan. 15, 1844.

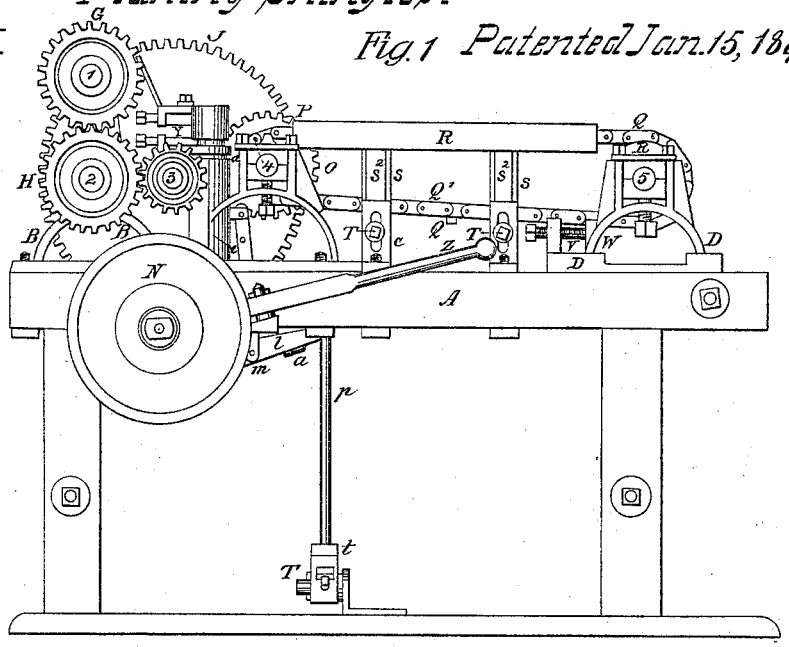
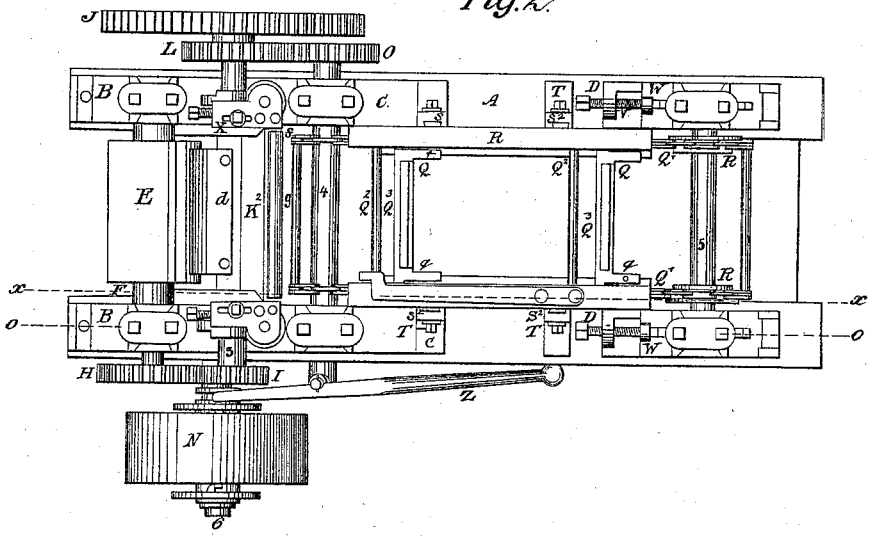


Fig. 2.



2 Sheets. Sheet 2.

S. Wood,

Planing Shingles.

No. 3,405. Patented Jan. 15, 1844.

Fig. 3.

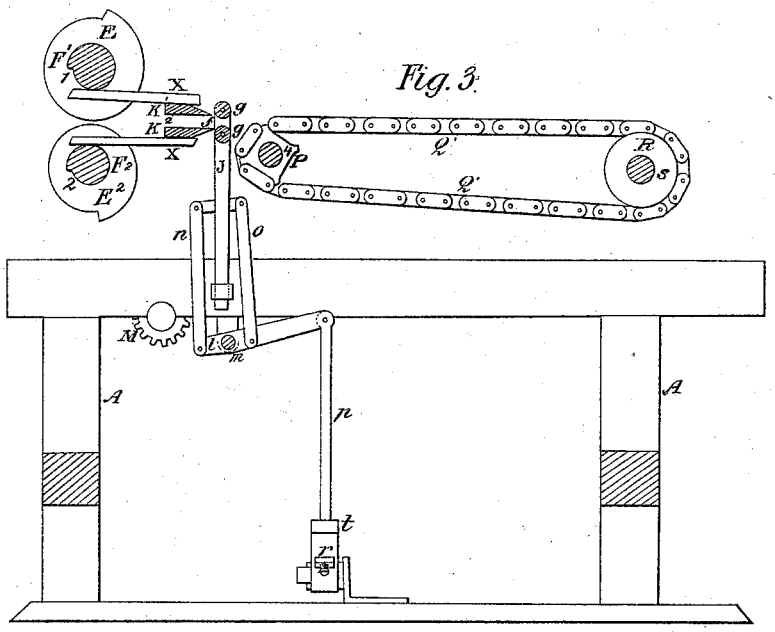
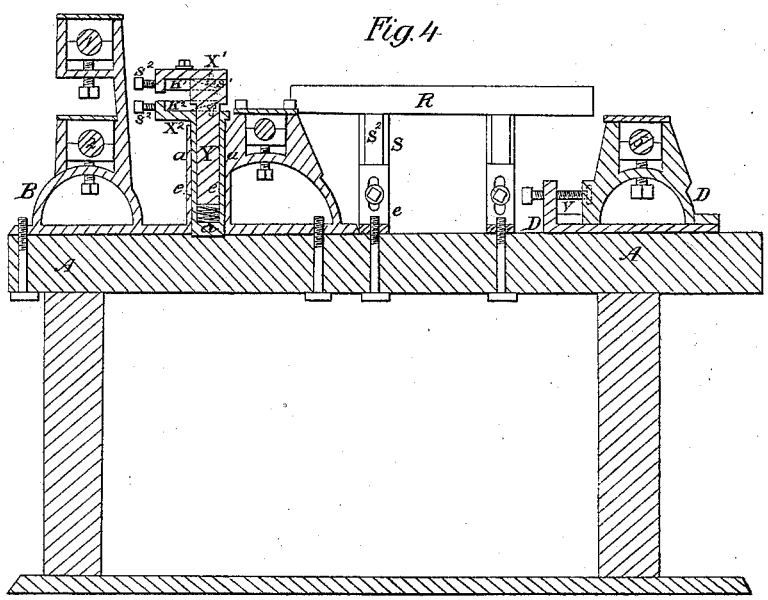


Fig. 4.



UNITED STATES PATENT OFFICE.

SIMEON WOOD, OF WORCESTER, MASSACHUSETTS.

MACHINE FOR SHAVING SHINGLES.

Specification of Letters Patent No. 3,405, dated January 15, 1844.

To all whom it may concern:

Be it known that I, SIMEON WOOD, of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Machine for Shaving Shingles, called "Wood's Double-Knife Shingle-Shaver," which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a side elevation of the machine. Fig. 2 is a top view. Fig. 3 is a vertical section at the dotted line *x x* of Fig. 2. Fig. 4 is a vertical section at the dotted line *o o* of Fig. 2.

The frame A is made of wood, or any suitable material, and of any convenient size and strength for the purpose intended and of rectangular, oblong, or any other form. Upon the top of the main frame A aforesaid are placed and secured the metallic frames B, C, D containing the boxes of the axles of rotary cams, cog wheels, pulleys sliding guides rotary guides and other parts hereafter described. These frames B, C, D, are bolted securely to the caps of the main frame by means of vertical screw bolts, passing through the same. In these frames are placed and sustained five transverse revolving axles 1, 2, 3, 4, 5 turning in boxes of the usual form and construction. The axle No. 1 carries the upper rotary cam cylinder E for drawing the shingles forward between the knives in conjunction with a corresponding rotary cam cylinder E^2 placed below it hereafter described. This axle also carries a small cam wheel F that depresses the upper knife K of the two parallel knives K′ K^2 that shave the shingle by depressing the stock containing said knife which operation takes place simultaneously with the elevation of the lower knife K′ produced by a similar small cam-wheel F^2 on the axle No. 2 of the lower cam cylinder E^2 to be described. There is also a cog wheel G on the end of axle No. 1 that gears into a similar cog wheel H on the axle No. 2 causing them to revolve together at the same speed. The cam cylinder E^2 and the small cam cylinder F^2 are made like those above described and of the same size. An intermediate axle No. 3 is placed immediately in front of the lower cam cylinder below the lower knife having a cog wheel I on one of its ends which works into the cog wheel H of the axle No. 2 and a large cog wheel J and a small cog-wheel L on its opposite end—outside the frame—the large cog wheel J working into a small cog wheel M is on the driving axle 6 and the small cog wheel L working into a cog wheel O in the projecting end of the axle No. 4 and the endless chain carriage hereafter described. The axle No. 4 is placed in front of the lower knife K^2 and below the level of the same and carries in addition to the cog wheel O just described two chain cog wheels P P placed inside the frame for revolving the endless chain carriage Q Q that brings forward the shingles to be shaved. The axle No. 5 is placed near the rear end of the frame and carries two flanged wheels R or pulleys that sustain and carry the chains of the endless chain carriage. The axle No. 6, Fig. 3, is called the driving axle and is placed in boxes secured to the under sides of the caps of the main frames immediately below the intermediate axle before described, having a cog wheel M on one of its ends that projects beyond the side of the frame into which the large cog wheel works as before mentioned and a driving or band pulley N on its opposite end for the band leading from the power that is to propel the machine. This pulley is thrown into or out of gear with its axle at pleasure by means of the usual crutch lever—as seen at Z.

The endless chain Q′ forming the sides of the endless revolving chain carriage for carrying the pieces of wood to be made into shingles is made of thick pieces of wrought or boiler iron forming the links—punched and united by pivots and transverse round parallel bars Q^2 of iron. These chains are carried around the chain gear and pulleys aforesaid and move in parallel grooved ways or guides R. These guides are cast with grooves in their inner sides which prevent the chain from raising or falling from a horizontal line. The said guides have vertical arms S extending down nearly to the top of the main frame—which arms are provided with dovetailed tongues S^2 that move in corresponding dovetailed grooves in the guide frames C before mentioned being held at any height required by means of horizontal screws T passing through said arms and slots in the aforesaid frames.

Revolving transverse parallel rests Q^3 for sustaining and carrying forward the pieces

of wood to be made into shingles are placed in the aforesaid chains and arranged at such distances apart as to bring forward a piece of wood for a shingle at every revolution of the cam cylinder or every vibration of the knives. These rests are rabbeted on the upper side forming a support to receive the end of the shingle and in passing through the guides the back of said rests stand in a vertical position and the bottom in a horizontal position having a tail piece *q* to each rest which slides along on the lower parts of the guides keeping the rest in a proper position for conveying the shingle to the knives. When the rests have carried forward the shingle and delivered it between the two rotary guides (*g*), hereafter described, and to the knives they reach the ends of the horizontal grooved guides R when the tail pieces *q* slide off said guides and fall causing the rests to turn on their axes and become liberated from the shingle—the rests pass on with the chains revolving around the gear and pulleys to receive other shingles to be shaved. In order to produce a certain action of the rests in turning should the gravity of the tail pieces not be sufficient a spring stop U is placed upon the top of one of the grooved guides or in any convenient position against which a pin *i* projecting vertically from the tail pieces strikes in revolving causing the rest to turn and free itself from the end of the shingle while being delivered to the knives. The chains are tightened by means of the usual kind of sliding boxes and screws V W at the rear end acting on the axle of the pulleys.

The knives K^1 K^2 for shaving the shingles are made of the best cast steel and are fastened by screws or otherwise each to a vertically rising and falling metallic frame or vibrating knife stock X one at each end of each knife. The knife stock X at one end of the upper knife is cast with a cylindrical stem Y projecting vertically downward for entering a corresponding cylindrical socket formed in the cylindrical stem *a* of the lower knife K^2 in which socket is placed a spiral spring *b* for keeping the two knives extended apart when not in the act of shaving the shingle—said spring being contracted when the knives are brought toward each other to shave the shingle and extended when separated. The stock is perforated with a number of apertures to admit screws for fastening the knife to the stock and for setting the knife. The small screw *b'* placed between the beveled part of the knife and the stock is for setting the angle of the blade. The small screw S^2 passing through the part of the stock turned at right angles presses against the back of the knife and is used for setting the edge thereof. The stock is extended back beyond the center of the axle of the small cam wheel F which depresses the same gradually in cutting the upper side of the shingle to its required taper simultaneously with the operation of the lower cam wheel that raises the under knife to cut the taper of the other side of the shingle. A curved metallic guide *d* is fastened to the upper side of the upper knife for guiding the chips and preventing them from passing between the cam cylinders. The under knife is made and adjusted in the same manner as the upper knife except that it is placed in an inverted position directly under the upper knife and is fastened to a stock with a hollow or socket, stem *a* instead of a solid cylindrical stem as before stated. The hollow cylindrical stem *a* rises and falls in a corresponding cylindrical box *e* bolted to the main frame A. The stocks, screws, and spring at the opposite ends of the knives, are made, adjusted, and operated in the same manner as those just described.

Two rotary or revolving transverse parallel guides *g* are placed in front of the cutting edges of the knife for guiding the shingle properly to the knives. These pivots of the guide rollers are placed in vertical sliding bars *f j* of metal that upon each other inside the frame in loops fastened thereto: said bars are attached to the extremities of arms *b* projecting from a vibrating axle *m* turning in boxes on the under side of the frame by vertical connecting rods *m*, *o*, one of said arms *l* is extended—having attached to its outer end a pitman *p* leading down to a treadle *t* through which it passes, having a nut *r* on the under side for increasing or diminishing the sweep of the arms and consequently the distance of the movement of the guide rollers to correspond with the required thickness of shingle at the butt end. A spring *a* fastened to the frame presses against the under side of said extended arms l^2 and keeps the guide rollers apart. The descent of the treadle closes the rollers and controls the spring simultaneously.

Operation: The machine being in motion by steam, manual, or horse power, place the rectangular piece of wood to be shaped and shaved into a shingle upon the rests and connecting bars of the endless chains. It is carried forward by the chain carriage and delivered between the guide-rollers in front of the knives and by these guided to the knives between which it is forced by the chain carriage continuing to revolve, the knives at the same time (which are set at the proper angle required) being caused to approach each other gradually as the wood passes between them for the purpose of giving it the proper taper for a shingle and as soon as the butt end has passed through between the knives it is seized by the revolving cam cylinder and the shingle held firmly and drawn

through between the knives and discharged at the end of the frame—the revolving rest during the operation of shaving the shingle, and when it arrives at the ends of the guides turns by the weight of the tail pieces or by the spring stop or otherwise to liberate the same from the shingle. As fast as one piece of wood is conducted to the knives another is put upon the endless chain carriage and carried forward in the same manner and thus a succession of pieces of wood are kept continually passing through the machine to be shaped and shaved into shingles in the manner before described.

I am aware that a patent has been granted to another person for a shingle machine in which the shingle is shaved and tapered by means of two knives that are made to approach each other as the shingle passes through and therefore it will be understood that I do not claim this as of my invention; but

What I do claim as my invention and desire to secure by Letters Patent is—

1. The combination of the cams F F^2 that force the knives to approach each other with the cams E E^2 that draw the shingle between the knives substantially as herein described.

2. And I also claim the described arrangement of the stocks to which the knives are attached by making the ends of the upper one slide in the hollow ends of the lower one—springs being interposed between their ends to force the knives apart at the end of each operation.

3. And finally I claim the turning rests for feeding the shingles in combination with the chain and guide for the purpose and in the manner described.

SIMEON WOOD.

Witnesses:
IRA M. BATTON,
FRANCIS SIBLEY.